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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,293	07/18/2003	Wei-Yang Su	81,608-C1	4115

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Legal Department
Huntsman LLC
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EXAMINER	
NYALLEY, LANSANA	
ART UNIT	**PAPER NUMBER**
1621	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,293	SU ET AL.	
	Examiner	Art Unit	
	Lansana Nyalley	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 16-20* is/are rejected.

7)☒ Claim(s) *12-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6 , 9, 16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Speranza et. al.(US patent 5,001,267)..

Applicants claim a process for producing a secondary amine product which comprises heating a mixture comprising hydrogen, a carbonyl compound represented by the formula : R'-CO-R" and a primary amine reactant represented by the structure R—NH2 to any temperature in the range of about 80-230 degree Centigrade and under any pressure in the range of about 100-3, 000 psig in the presence of an effective catalytic amount of a catalyst comprising metallic palladium, wherein said secondary amine product has the formula RNH---CHR'R" in which R is any alkyl, aminoalkyl, alkylaryl or aminoalkylaryl group, whether straight-chain, branched or cyclic, R' and R" are each independently selected from the group consisting of hydrogen, C1-C20 alkyl, whether straight-chain, branched or cyclic, subject to the proviso that both R'and R" are not simultaneously hydrogen, wherein the amount of tertiary amine produced during

said process is less than 3.00% by weight of the total amount of secondary amine produced.

Speranza et. al. disclose a process for producing a secondary amine product which comprises heating hydrogen, a methyl alkyl ketone of formula CH3---CO---R , wherein R represents alkyl groups having C1-C4, an amine of formula NH2-CH2-CH2-NH2 and RNH-CH2-CH2-NH2 in the presence of a palladium catalyst on carbon charcoal to produce a product of purity of more than 99%. (See column 4, lines 38-54).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 7-8, 10-15 and 17-19 are rejected under 35 U.S.C.103(a) as being unpatentable over Speranza et. al. (US patent 5,001,267) in combination with

Tahara et. al. (US patent 4,373,107), further in view of Oude Alink et. al (US patent 3,994,975) and Speranza et. al. (US patent 3,110,732).

WHAT APPLICANTS CLAIM.

Applicants claim a process for producing a secondary amine product which comprises heating a mixture comprising hydrogen, a carbonyl compound represented by the formula : R'-CO-R" and a primary amine reactant represented by the structure R—NH2 to any temperature in the range of about 80-230 degree Centigrade and under any pressure in the range of about 100-3, 000 psig in the presence of an effective catalytic amount of a catalyst comprising metallic palladium, wherein said secondary amine product has the formula RNH---CHR'R" in which R is any alkyl, aminoalkyl, alkylaryl or aminoalkylaryl group, whether straight-chain, branched or cyclic, R' and R" are each independently selected from the group consisting of hydrogen, C1-C20 alkyl, whether straight-chain, branched or cyclic, subject to the proviso that both R'and R" are not simultaneously hydrogen, wherein the amount of tertiary amine produced during said process is less than 3.00% by weight of the total amount of secondary amine produced.

DETERMINATION OF THE SCOPE AND THE CONTENT OF THE PRIOR ART (M.P.E.P. 2141.01).

Speranza et. al. disclose a process for the producing a secondary amine product which comprises heating hydrogen, a methyl alkyl ketone of formula CH3---CO---R, wherein R represents alkyl groups having C1-C4, an amine of formula NH2-CH2-CH2-NH2 and RNH-CH2-CH2-NH2 in the presence of a palladium catalyst

on carbon charcoal and a product of purity of more than 99%. (See column 3, lines 1-68, column 4, lines 1-54column 5, lines 23-28, column 7, lines 25-68 and column 8, lines 22-68).

ASCERTAINMENT OF THE DIFFERENCE BETWEEN THE PRIOR ART AND THE CLAIMS (M.P.E.P. 2141.02).

The difference between Speranza et. al. (US patent 5,001,267) and the claims in the instant application is that Speranza et. al. do not disclose a catalyst comprising palladium on carbon nor do they disclose the said carbon comprising charcoal. Speranza et. al.(US patent 5,001,267) do not teach a process of using isophone diamine, diisopropyldiisophone diamine or an alkoxylated amine as the amine reactant.

Tahara et. al. and Oude Alink et. al. teach the difference.

Tahara et. al. teach a process for preparing an N-alkyl-alkylene-diamine by reacting an aldehyde with an alkylene diamine in the presence of hydrogen and a catalyst comprising palladium on carbon and the carbon comprising charcoal (See column 1, lines 1-68 and column 2, lines 1-48).

Oude Alink et. al. teach a process of producing a cyclohexyl amine, such as, isophone diamine, by reacting an isophone compound with a primary or secondary or any other amine in the presence of hydrogen and palladium catalyst (See column 1, lines 1-68, column 2, lines I-68).

Even though Oude Alink et. al. do not specifically disclose a diisopropyldiisophoneamine reactant, this reactant is embraced by the genus

disclosed by Oude Alink et. al. (See column 1, lines 39-54 and column 2, lines 16-50).

Speranza et. al. (US patent 3,110,732) teach a process of producing an alkoxylated amine compound by reacting a primary amine with a carbonyl compound in the presence of sodium or potassium alkaline catalyst (See column 1, lines 45-27 and column 2, lines 1-72).

FINDING OF PRIMA FACIE OBVIOUSNESS-RATIONAL AND MOTIVATION (M.P.E.P. 2142-2143).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have looked to the teachings of Speranza et. al., Tahara et. al. and Oude Alink et. al. for a reaction that involves a carbonyl compound with an amine compound in the presence of hydrogen and palladium catalyst. One of ordinary skill in the art would have been motivated to do so because Speranza et. al., Tahara et. al and Oude Alink et. al.. are all directed to the preparation of secondary amine by reacting a primary amine with a carbonyl compound in the presence of palladium catalyst.

Base on the above, Speranza et. al., Tahara et. al. and Oude Alink et. al.., teach all the elements of the claimed invention with sufficient guidance, particularity and with reasonable expectation of success that the invention would be prima facie obvious to one of ordinary skill (the prior art references teach or suggest all the claim limitations with reasonable expectation of success. See M.P.E.P. 2143).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lansana Nyalley whose telephone number is 571,272,0697. The examiner can normally be reached on 7:45 to 4:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571 272 0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lansana Nyalley,Ph.D.
03/ 23/ 2005

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